UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION I
J.F. KENNEDY FEDERAL BUILDING, BOSTON, MA 02203-2211

MEMORANDUM

DATE: July 12, 1994

SUBJ: RCRA Compliance Evaluation Inspection (CEI) Report at Pfizer Inc., Groton, CT

FROM: Richard Piligian, Environmental Scientist
CT Waste Regulation Section

TO: John Podgurski, Chief
CT Waste Regulation Section

I. GENERAL INFORMATION:

Facility Name and Address:

Pfizer, Incorporated
Eastern Point Road
Groton, CT 06340

RCRA Contact:

Robert Pfisterer
Environmental Director
(203) 441-3602

Date of Inspection:

December 6 through 10, 1993

Purpose of Inspection:

Conduct a multi-media inspection including a RCRA CEI

Persons Participating:

U.S. EPA:
Richard Piligian, Steve Yee, David Guest, Annette Viola, Jonathan Walker - Waste Management Division
Richard Hull, Michael Fedak - Water Management Division
Tom McCusker, Kim Schweisberg, Linda Marinilli - Air Management

Division
Ray Thompson, Dan Granz, Al Hicks, Al Pratt, Jay Pimpare, Jerry Keefe,
Tom Faber - Environmental Services Division
Richard Ida - National Enforcement Investigation Center, Denver, CO

II.RCRA REPORTING/INFORMATION REQUIREMENTS:

- Facility Identification Number: **CTD001147495**
- Type of Operation: **TSDF/Generator/IN/BB/TR**
- Type of Notification: **TSDF/Generator/IN/BB/TR**
- Date of Notification: **August 18, 1980**
- Date of Part A Submittal: **November 19, 1980**
- Date of Part B Submittal: **November 6, 1986**

III.Source Description:

The Pfizer Facility (Facility) is a 141-acre site located on Eastern Point Road in Groton, Connecticut (See figures 1 and 2). The Facility is bordered on the west by the Thames River (Thames River or river), on the north by the Amerada Hess Corporation's oil storage and refueling station, and to the south and east by residential areas. Shennocossett Beach, a residential public beach is located approximately one mile south of the Facility. Electric Boat Division of General Dynamics is located approximately one mile north of the Facility.

The Facility consists of two main divisions. Pfizer's Chemical Division manufacturing plant is operated by the Specialty Chemicals Group (recently renamed as the Food Sciences Group) and occupies approximately fifty-three (53) acres. Pfizer's Process Research Development (PRD) facilities are operated by the Research Division and are located on approximately eighty-eight (88) acres contiguous with the manufacturing plant. The manufacturing facilities are located west of Eastern Point Road, and the research facilities are located on the east side of Eastern Point Road. The PRD area is zoned restricted industrial and the Chemical Division is zoned general industrial. Approximately 85 percent of the plant is paved and/or occupied by buildings and other industrial structures. The areas adjoining the site are mixed residential and industrial. Prior to Pfizer's operation, the site was occupied by a submarine manufacturer,

and prior to that, a cannery and a shipbuilder.

The on-site buildings at the manufacturing plant consist of manufacturing and process buildings, administration buildings, storage warehouses, pilot plants, a pyrolyzer/incineration area, a steam, electricity and compressed air generating facility and other structures. The industrial structures include above and below ground tanks which are utilized for the storage of raw materials, intermediate products, and hazardous and non-hazardous wastes. In addition, there is a wide variety of below grade piping, including lines for fire protection, potable water, storm water, sanitary and process sewers, electrical conduits and process cooling/effluent transmission.

The Facility has numerous underground and above-ground tanks that are used for storage of both raw materials and intermediate products, as well as a number of tanks used in the storage of hazardous wastes.

Pfizer is principally involved in the manufacture of pharmaceutical, organic, and food chemicals in bulk form using fermentation and organic synthesis. More than 100 products are produced at the Facility. The largest volume products are citric acid, sorbitol and caffeine. Citric acid is produced by fermentation processes, and sorbitol and caffeine are synthesized. The manufacture of these products is conducted in four (4) areas: Organics I, Organics II, Organics III, and Antibiotics. All of these areas blend and mix both liquid and dry chemicals, using solvents as carriers in the production process. The primary hazardous chemicals used are volatile and semi-volatile organic compounds including alcohols, alkalies, alkenes, esters, amines, furans, ketones, benzene, toluene, ethylbenzene, and xylenes, and chlorinated organics. Nickel, palladium, platinum, and rhodium are or have been used as catalysts in some of the processes.

The operations in the Research Division consist primarily of offices, laboratories, and storage facilities. The laboratory operations generate small quantities of various chemicals, such as solvent wastes and wastes that are contained in lab packs or collected in 55-gallon drums. The Research Division uses a pilot plant consisting of small reactors (<100 gallons) to run developed pharmaceuticals.

IV. Processes and Wastes Generated

Pfizer generates the following waste streams:

- Spent solvents
- Off-specification raw materials
- Waste acids
- Spent carbon/filtration aids
- Tank cleanup wastes
    - Product samples
- Lab pack
- process wastewater
- Non-contact cooling water
- Storm water
- VOC air emissions

Pfizer manages hazardous wastes generated on-site by the following waste processing methods:

- Pyrolyzer/incinerator-hazardous and nonhazardous wastes may be pyrolyzed/incinerated provided they conform to the tolerance limits for wastes fed to the pyrolyzer. Presently, only characteristic hazardous wastes are pyrolyzed until a final hazardous waste operating permit is issued. Pfizer has conducted a trial burn at the Facility pursuant to its RCRA Part B permit application. Pfizer is seeking an operating permit from the CTDEP to include treatment of waste in the pyrolyzer. The waste from the incineration of hazardous waste will be shipped to a RCRA permitted hazardous waste facility. When non-hazardous waste is incinerated, the residue is shipped to a state permitted facility.
- Off-site disposal-hazardous wastes are shipped off site if they are not suitable to be fed to the pyrolyzer/incinerator. These wastes are sent to a RCRA permitted hazardous waste management facility. Pfizer is seeking an operating permit from the CTDEP for the storage of hazardous waste in containers and tanks prior to either being shipped off-site for disposal or treated in the pyrolyzer.
- On-site storage-hazardous wastes are stored on-site in one >90 day storage area and various <90 day storage areas.

V. General Observations

Observations made during the five-day inspection are presented below, by area inspected. Throughout this report all references to specific containers of wastes are for containers that were properly closed, marked, labeled and dated unless otherwise noted. All "drum(s)" referenced are steel 55-gallon drums unless otherwise noted.

During the inspection personnel from EPA took a series of photographs of various areas across the facility. Due to an error in processing the resultant pictures were ruined.

On Monday December 6, 1993, after a safety briefing, a facility overview and history, and a general process overview, Richard Davis and Mike Mahoney of Pfizer accompanied Annette Viola and myself on the start of the RCRA inspection.

>90 Day Hazardous Waste Storage Area (HWSA): This area is located in the south-west corner of the Pfizer property, alongside the Thames River. The area is asphalt paved and approximately 85 feet by 90 feet in size. Warning signs were posted at the southeast, northeast, and northwest corners and the east side of the area. There were no warning signs for approaches from the south. There was a fire extinguisher located just north of the area. There is no phone in the area, the closest phone is located inside Building 163. The spill control kit for the storage area was located on the west side of the area. It did not contain shovels, brooms or other spill control equipment. There were no containment structures or segregation provisions for incompatible wastes.

Each hazardous waste label has a waste form number which identifies 1) the department from which the waste was generated and 2) a waste code number which corresponds to a specific waste type and batch. In addition, each label has a unique label number.

Monday December 6, 1993 - A drawing representing the physical layout of the area is included as **Attachment 1.** There were thirteen rows of waste with as many as three tiers in each row. We were not able to inspect all third tier drums. Labels were not always visible and/or legible. Drum conditions were difficult to ascertain. Pallets containing 20 gallon fiber drums had eight drums per pallet. In each case, we were unable to inspect the middle two fiber drums on each pallet

regardless of the tier.

Row 1 (at the north end of the storage area contained eighteen drums of waste. These wastes included hazardous waste oils (Form # EN-0123), methanol waste (# AR-800, 801), Hexane waste (# OI-1606), flammable liquids (#SC-710) and non-regulated waste stream (#PRD-7756).

Row 2 contained twenty-four drums (two tiers with twelve drums each) of flammable solid, D001, F003 waste (# OII-798).

Row 3 had three tiers. Tiers one and two had twenty-eight drums apiece, tier three, the top level, had twenty-four drums. All eighty drums held the same waste, # RE-1389, waste flammable liquid containing chloroform and methylene chloride (D022, F002, F003, F005).

Row 4 had three tiers. Tiers one and two had sixteen drums apiece, tier three, the top level, had twelve drums. All the drums in this row contained D001 - Ignitable liquids, some of these were also F003. Waste form numbers included; PRD-7740, 7745, 7746, 7747, 7748, 7749, 7750, 7751, 7752, 7753, 7754, 7755, 7757, 7758, 7759 and 7712.

Row 5 had three tiers. The first tier had forty drums, the second tier - forty, and the third tier had thirty-six. These drums contained a variety of ignitable (D001) and listed solvent waste (F002, F003, F005) streams. Waste form numbers included; EV-507, FE-28, FR-307, SC-708, PRD-7557, 7608, 7614, 7649-51, 7657, 7665, 7669, 7671, 7674, 7677, 7680, 7688, 7698, 7703-4, 7712, 7714, 7730-33, 7736-7, 7739, and 7742-4.

The first tier in Row 6 had 14 fiber drums, one 85 gallon salvage drum and thirteen drums. Contents of the containers included stream form numbers; EV-510 (D005), EV-508 (F002), CI-916 (D002, D003), PRD-7619 (D001, D002), EV-496 (D006), PRD-7697, 7707 (D001, F003), and PRD-7675 (D001). The second tier contained seven drums and one fiber drum. Wastes included; CI-916, EV-496, and PRD-7675. The third tier contained four drums of PRD-7675.

Row 7 had three tiers. The first tier had twelve drums. Eight of these contained hazardous waste oil with EPA waste codes D015, D022, D029, D039, F002, F003, and F005. These eight

containers had the following waste form #'s - RE-1379, RE-1400, EN-0121, EN-0120, and RE-1390. The remaining four drums at this level were form # OII-804 (F005). The second tier contained nine drums, four drums of EN-0121, four drums of EN-0122 (the same waste type as EN-0121), and one drum of OII-804. The third tier had three drums of EN-0121 and one drum of EN-0120.

Row 8 also had three tiers. This row contained wastes which were all corrosive (D002). Some of these streams were only corrosive, others were corrosive and ignitable (D001, D002), still others were listed solvents (F002, F003) mixed with either of the previous two. The seventy-seven drums in this row include the following waste form numbers; ER-107, OI-1600, OII-789, PRD-7525-7, 7529-31, 7560-1, 7563, 7569, 7573, 7575, 7577, 7579, 7616-8, 7620-1, 7637, and 7741.

As stated above the actual number of fiber drums and their contents are approximate due to the inability to inspect the containers in the middle of the pallets.

The ninth row had ninety six fiber drums, all with the waste form number EV-505. The waste was listed as toluene wastes (D001, F005).

Row 10 consisted of three tiers of fiber drums. The first tier held 16 containers of from # RE-1398 (chloroform wastes, D022, D038, F005); 8 containers of form # RE-1395 (the same waste notations as RE-1398); and twenty-four total containers #'s AR-799, ER-108, ER-109 and 0II-810 (all noted as methanol wastes, D001 and F003). The second tier had 47 fiber drums. There were sixteen containers of # RE-1393, eight containers of # RE-1398, and twenty-three total containers of AR-799. ER-108 and 0II-794 (also D001, F003). The top tier had an unknown number of fiber drums. However, the waste form numbers observed included: AR-799, 0II-794, 0II-810, RE-1393. 0II-809 (D001, F005-toluene), 0I-1559 (D001, F003 -(Ethyl Acetate), and EN-0124 (D001, D035, F003, F005 -MIBK, xylene).

Row 11 consisted of three tiers of fiber drums apparently all of the same waste type. There were approximately two hundred-forty containers of form # 0I-1572, toluene waste (D001, F005).

Row 12 contained ninety-six containers identical to those in Row 11. In addition, in the first tier were approximately 40 fiber

drums total of waste forms #'s 0I-1560 (D001, F003 -ethyl acetate), 0I-1559 (the same). 0I-1587 (D001 - ethanol) and 0II-801 (D001, F005 -toluene). In the second tier were approximately forty containers total of forms #'s 0II-794, 0I-1560, 0I-1559, and 0I-159 (D001, F003, F005, D022- ethyl acetate, methanol). On the third tier were 0I-1560, 0I-1559, 0II-794 and ER-106.

The thirteenth row contained a total of approximately one hundred-eighty-four fiber drums. Forty-eight were waste for # AR-797 (D001, F003,- ethyl acetate), one hundred twenty were waste form # AR-796 (D001, F003 - methanol) and sixteen were 0I-1572.

There is a containment sump located at the southeast corner of the storage area. This containment area is pumped out into portable 350 gallon tanks, tested for Ph, total carbon and visually inspected then discharged to the Equalization Basin. Only the initial batch is tested. Due to rain the previous night, the containment area was pumped out the morning of December 6, 1993. Three and one-half tanks were filled.

Drum crushing operation area: Located south of the >90 day storage area is the drum crushing operation. There were two-roll-offs located on gravel in this area. One was for raw material drums and one for hazardous waste drums. The drums are triple rinsed at Building 4 prior to crushing. The roll-offs are not covered. Liquids were visible running out of the roll-offs and there were puddles on the ground around them.

Non-regulated waste storage: Storage of non-RCRA waste occurs just west and north of the main storage area. Waste types stored there included; OIII-396, CA-046, OI-1602, SC-701, OIII-404, OII-751, 760, 775, 778, 788, 802, 812, 813, RE-1375, 1376, and 1381.

Lead acid battery storage area: Storage of lead acid batteries is located by the southeast corner of Building 185 at the entrance to the new less than 90 day storage area. There were batteries in storage with secondary containment. There were no warning signs in this area.

Building 185: Joining the tour of this building was Jack Cannon and the RCRA Coordinator for the area, Don Frye. There was a <90 day storage area that contained a drum of mixed halogenated and

nonhalogenated solvents. The form number was FR-311 (D001, D022, F002, F003, F005). Wastes are brought to this drum from labs upstairs. The only warning sign in this area was a "danger" sign on the bottom edge of the pallet the drum was sitting on. There was secondary containment in this area.

On the third floor of this building was lab 305. This is one of the generation points of the solvent waste stream. Two and one-half and five gallon safety cans are used to store waste until they are emptied on an "as needed" basis into the drum at the <90 day area. According to Rich Davis this building generates "pilot" scale wastes from fermentation processes. These wastes are drummed and brought to the HWSA directly without entering the storage area at 185.

Building 31-A: Cage Area - This area is designated a satellite storage area. There was a fiber drum of approximately twenty gallons that contained sandblast grit and cadmium. There was no hazardous waste label, only a satellite accumulation label (red and white). There was no date on the container and no warning signs at the cage area. The sandblasting is done at Building 49 and the waste brought over to this area.

Paint Shop - This area is designated a satellite storage area. There were two drums of thinners and solvents here, one without a label and waste solvent written on it and the second with an accumulation start date of 12/6/93. Approximately 15-20 feet from these two drums was a hazardous waste drum of waste oil. This third drum had secondary containment, the first two did not. There were no warning signs, the floor was badly cracked and floor drains in the area direct discharge to the equalization basin.

Environmental Lab - This area is located on the second floor of the north end of the building. Methanol wastes generated here are transported to the HWSA. This is a satellite storage area.

Observations from Tuesday, December 7, 1993:

Building 31A: PCB Storage Area - Outside the Environmental Lab two drums of PCB light ballasts were stored. According to Rich Davis, they are "all intact" and will be transported to Rollins Environmental in Deerpark, TX. They are in secondary containment, they are labeled and there are no dates on the

labels.

Building 49: This building is a maintenance machine shop. A small hand sandblaster is located at the north end of the building. Wastes from this operation go to the container in Building 31-A. An additional sandblaster similar to this one is located in Building 114. Petroleum naptha based cutting oils are used in Building 49 and are transferred from a parts cleaner to a satellite accumulation area in Building 114 where it is managed as a hazardous waste oil.

HWSA: Additional wastes were noted at the HWSA that were not present previously. They included forty salvage drums (85 gallons) of stream # OII-798, acetone tower bottoms. They are placed in overpack drums because waste gets on the top of the regular drum as they are filled at high temperature. Also present were streams # OII-816 (D001, D003 - waste Magnesium), OI-1605 (D001 - Hexamethyldisilazane), OI-1606 (D001), and AR-800 (D001, F003 - Methanol). Several of the new drums had concave tops, one drum "popped" (went from a flat top to concave due to pressure in the drum) while I was near it.

Building 163 Tank Farm: Hazardous waste tanks S-22, 23, 24, 25, 26, and 27 are located west of Building 163. Installed in 1989, there are two 30,000 gallon double walled tanks, each with three 10,000 gallon compartments. This is a storage area for Building 123 wastes. At the time of inspection, tank S-25 contained Methanol. Wastes are pumped from here to a loading station on the east side of Building 123. From there they can be sent to the pyrolyzer or off-site. Water accumulating in the containment area is discharged to the equalization basin after testing for pH and total carbon. These tanks can be used also for product storage according to Rich Davis.

Building 163: This building is a maintenance building for Building 123. There was a small sandblast unit located here similar to the one at Building 49. Rich Davis said that we should assume it also contained the same types of materials and it could be hazardous. There were no labels or signs in the area. In response to an information request, Pfizer submitted analytical data from a composite sample of sandblast grit generated somewhere at Pfizer during early 1992.

Building 123, Organics II - South end of building: Leading the tour of Organic II was Charlene Hughs, the RCRA Coordinator and Tony Marsullo, a Foreman.

Fourth Floor - Group D-R-19 Area, this location had a satellite container used to drain excess material from the process sampling line. It is non-hazardous. The VPG-4 area contained a satellite Hazardous Waste (HW) container (2 1/2 gallon) of dipropylene glycol (DPG).

Third Floor - East Production Control Lab - This lab had three 5 gallon satellite storage containers, one for non-chlorinated solvents and one for chlorinated solvents. The 5 gallon chlorinated solvent container was stored in an acid cabinet with Nitric (70-71%), Phosphoric, Sulfuric, and Hydrochloric (38%) Acids. The third container was for methanol wastes from Erythorbics.

West Production Control Lab Container Storage Area (CSA) - This CSA is located on the Erythorbic side of the building. Methanol wastes from the East Lab come here. The date on the drum was 11/6/93. This is a <90 day storage area.

East Production Control Lab CSA - There were two drums in this area, one chlorinated solvents and one non-chlorinated solvents. The dates on the drums were 11/3/93 and 11/8/93 respectively. This is a <90 day storage area. Wastes from the East Lab come to this area. The drums sat in a portable secondary containment unit. There were funnels in both drums, the lids were closed and valves were on the base of each funnel and they were closed.

Group A 5301 Area - At this location, there is a 2 1/2 gallon satellite container draining a sampling line. This is a toluene hazardous waste.

Group A CSA - There was one drum of Toluene and Acetalhyde wastes dated 11/28/93. It sat in a secondary containment unit. The drum had a funnel which was closed and the funnel valve was also closed. This is a <90 day storage area.

Group B CSA - The were four drums in this <90 day storage area. Three of the drums contained a flammable solid waste - methyl ketones, from a vent line on the roof. All were dated 12/6/93, all of the dates were written with a different pen

then the rest of the label. One drum contained water, DPG, and Maltol (a food additive) and was dated 12/6/93.

Group C, R-7 - This satellite area is located at another sample point. Wastes included DPG, Methanol and Veltol Plus.

Group C, R-1 - This satellite area is located at another sample point. Waste located here was Veltol Plus with methanol.

Second Floor - Group C, R-1 - This satellite area is located at a Veltol sampling point. The container has Veltol (MIBK) wastes.

Group C, R-4 - This area is designated a satellite storage area. A waste drain line comes down from the third floor to this drum. The waste is called "chlorine analyzer liquid, methanol, hydrochloric acid." According to Tony Marsullo, all roof vent over flows, floor drains, etc. are piped to a containment tank system. There they are sampled and discharged through the equalization basin. Floor drains near the R-4 drum have possible product from Veltol, condensate, low pH process liquids going down the drain. The concrete flooring was being dissolved in this area.

TS-2 CSA - This is a designated <90 day storage area. There were six, 20 gallon fiber drums all dated 12/6/93, of "Bthym Step 2-carbon cake". According to Charlene Hughes, this waste contains toluene.

Group D, R-5/6 - This satellite container is located at a Veltol sampling point.

Solvents CSA - This <90 day storage area, held two containers. The first was a drum of non-chlorinated solvents, the second was a 20 gallon fiber drum, dated 12/6/93, containing "sludge from clean-up". This was sludge from power washing that occurred on the first floor. According to Charlene Hughes, the Organics II lab will try to identify the waste first. They will look for only solvents currently being used and no metals. The sample was in her office, not preserved or refrigerated, in an improper container consisting of a reused plastic container 1 1/2 inches high and in diameter.

Solvents T/S-1 - This is a five gallon satellite storage container used for waste acetone and methanol generated by process sampling.

Group A-5301 - This satellite storage area is for Beta Thym Step 2 wastes (toluene). This container is emptied in the Group A CSA on the third floor.

Outside Tanker Loading Station - During the inspection of Building 123 there was a tank truck connected to the hazardous waste feed/pump line at the station manifold. All hose connections were still in place. I was told by Organics II staff that during the midnight shift 1000 gallons of aqueous wastes containing MIBK and methanol were pumped into the tanker from process tank T-14 (poss. 1514). This waste is to go to the pyrolyzer. The tanker had UN1993 placards and no other markings. There were no signs or labels, there was no containment structure in the loading area. The top hatch of the tanker was open. Pfizer planned to pump additional wastes into the truck, perhaps within a day.

Building 123 - Erythorbic, North side of building: Mike Teague a production supervisor, Paul Raddate a production manager, and Damien Greene the Erythorbics Manager accompanied the tour.

Third Floor - HCL line - The 2 1/2 gallon satellite container received "HCL recycle line" wastes. This waste goes to tank T-610 which feeds the A-600 column. All erythorbic sample containers go to tank T-610.

Second Floor - T-2201 area - There was a methanol waste container here that gets emptied in Tank T-610.

C-103 area - There was an ester slurry (methanol, sulfuric acid) satellite container in this area.

There is a drain box on the second floor where sample containers are emptied into T-610 which is on the floor below. This drain box is open.

There are additional columns (V-2255 and C-317) which according to Pfizer generate non-hazardous bottoms.

Column C-317 - This column recovers methanol. The bottoms from this column go to the equalization basin.

A-600 Feed area - This container receives wastes from the sampling of the A-600 column.

First Floor - Tank T-610 - This is a 6000 gallon tank. There is no secondary containment, no dates, and no labels.

Column A-600 - Column A-600 distills methanol from erythorbic hazardous waste to be used back in the process. A-600 column bottoms are pumped continuously to Tank CT-109 at the pyrolyzer.

Organics II - First Floor - Tank T-5168 is a hazardous waste tank. There is secondary containment. There was product in the tank on the date of inspection, no HW. If there was hazardous waste stored, Pfizer hangs a HW sign on the tank. There is a blind sump in the containment area, it is pumped out to the equalization basin after testing for total carbon and pH.

Column V61 - This column recovers solvent. Column bottoms are pumped off and drummed as hazardous waste.

TFC1-1 - This is a reboiler to thicken bottoms (aqueous) from V61. The bottoms are drummed off of this tank.

Tank T-2 - This is a hazardous waste tank of approximately 5000 gallons. It stores methanol hazardous wastes.

Pyrolyzer Operation:

At the Groton plant, Pfizer utilizes an incineration system to thermally treat specific industrial wastes generated at the plant. The pyrolysis/incineration system consists of two (2) rotary hearth pyrolyzers, a rich fume reactor (secondary combustion chamber), a waste heat boiler, a wet scrubber system, and an emergency stand-by fume incinerator.

The draft permit states that up to 4416 pounds per hour (lb/hr) of a mixture of aqueous and organic wastes may be fed to each pyrolyzer where the waste is pyrolyzed under oxygen deficient conditions at a minimum of 1300°F. The figures cited in this description are from the draft permit. The pyrolysis gases from both pyrolyzers are ducted to a rich fume reactor where they are mixed with excess air and combusted with the assistance of an auxiliary fuel burner at a minimum of 1706°F. Particulate and acid contaminants are removed from the flue gases using a packed tower and high energy venturi scrubber system.

The incineration system is equipped with an automatic waste feed shutdown system that will stop the waste feed if critical operating conditions deviate from the permitted levels. In addition, there is an emergency stand-by rich fume incinerator (RFI) which will burn the pyrolysis off-gases in the event the rich fume reactor shuts down or an air pollution control equipment failure.

The rich fume reactor (RFR) is a totally enclosed refractory-lined cylindrical structure with three (3) distinct chambers or zones (inlet, burner, and combustion) within the unit. It is equipped with two fuel oil fired burners and injector nozzles to provide auxiliary fuel to maintain a minimum temperature within the unit.

The RFI is of similar design as the RFR with the exception that it is positioned vertically and is fitted with its own exhaust stack. The RFI is not tied into any air pollution control equipment. During normal pyrolysis/ incineration operations, the RFI is maintained on a "stand-by" mode, in a low-fired condition where it is monitored by an ultraviolet (UV) flame detector on the burners.

General Observations

1.Char Collection System

During the 12/6/93 familiarization tour of the Pfizer facility, water was observed to be discharging from the two char 30-yard collection roll-off containers into the secondary containment drain areas that surrounds the containers. In addition, two empty replacement roll-offs were located adjacent to these containers. John Tassone, one of the Pfizer representatives who were accompanying the EPA group was asked about the discharge. He said that the discharge from the containers was directed to their waste water treatment system (equalization basin). The discharge point from the containers was located in one of the corner. Dan Granz of ESD who was on the tour tested the discharge from the roll-offs with pH test strips. He said that the pH of the test strip was 14. Photographs of the location were taken by Granz.

During the discussion concerning the pH, Tassone of Pfizer said that during the previous day the pH of the char with the 2 pyrolyzers running was 9 - 10. The pH from the second roll-off discharge was also tested by Pfizer.

A check of the Pfizer's pH records for the char indicated that a pH reading taken at 1600 hr on 12/6/93 with the pH being 10.67. Tassone said that the record also indicated that the pH was on an upward trend. At the request of Granz, Scott Jankovich, Senior Technical Production Manager, the supervisor of the pyrolyzer operation retested the pH of the char.

The char sample for the retest was taken from the discharge screw conveyor of the pyro hearth chamber and mixed with water to create a char and water mixture. The tested pH of the mixture was 11.83. The ph of the water taken from the 2nd roll-off container discharge was 11.46.

Granz expressed concerns that the correct ph buffer solution was not being used with Pfizer's single point meter. Pfizer personnel were using a pH 9 buffer which, according to Dan, would not result in an accurate pH reading. Dan thought that a ph 12 buffer solution should be used for the calibration to produce a more accurate reading. The pH meter was recalibrated with the pH 9 buffer and the char and water mixture produced a reading of 11.83. The Pfizer personnel said that they did not have any pH 12 buffer solution in stock and that they stocked only buffer solutions with a pH of 2, 7, and 9. Pfizer personnel said that they sample the char once per hour when the pyrolyzer(s) are running.

2.Double Effects Evaporator

On 12/7/93, a tour of the double effects evaporator (DEE) was conducted. The DEE is a two (2) stage/double effect unit that is located within the pyrolyzer operations building (Building 171B). The Pfizer representatives (Jankovich and Pfisterer) said that the purpose of the DEE is to concentrate by the evaporation of the "dilute" waste stream that is sent from Tank CT-101. The effects operation is done by using steam from the waste heat boiler in the pyrolysis system. The thermal effect treatment is to boil off the water and split the stream. Some of the waste stream is sent back to the first stage and recompressed to a high pressure before

being sent to a heat evaporator system. Heat from this evaporator is recovered for use in heating the waste stream. Pfizer representatives claim that 2.3 lbs. water is evaporated for each pound of steam used. The system consists of six (6) evaporators. The waste stream is first heated in the first three evaporators and then retreated in the second set of evaporators. The concentrated waste stream is pumped to Tank CT-102 for further treatment/disposal in the pyrolyzers. The Pfizer representatives claim that up to 50% of the water can be removed from the dilute waste stream. Steam produced from the waste heat boiler in the pyrolyzer system is used in the DEE.

A 5-gallon container labeled HW itaconic acid was observed in the double effects evaporator area.

3.Citcon

The Citcon operation is located in a section of the building (Building 171A) which is located next to the pyrolyzer operation in Building 171B. The Citcon process was used to concentrate molasses but this operation is no longer operational. Two (2) large carboys of sulfuric acid were located on the first floor of this operation. Jankovich said the sulfuric acid was for use in the waste water treatment system (equalization basin).

There was one drum labeled as a hazardous waste being managed as a satellite accumulation area. There were no warning signs, no date on the drum, and no secondary containment. The drum was labelled "waste lub. oil". Oils from the pyrolyzer building (171B) are brought to this area. This building was mainly idle.

4.Tanks CT-101, CT-106, and CT-109

Tanks CT-101, CT-106, and CT-109 are located in a secondary containment dike area. These tanks are located north-northeast of the pyrolyzer operation/building. Wastes can be piped directly to the tanks or be delivered to the tank truck pad by means of tanker trucks. The pad is located on the east side of the tanks. The pad can take up to four (4) tanker trucks. The Pfizer representative said that tank trucks are used to bring in only "dilute" wastes or raw material. They said that the pad can be used for the shipment of product and that all

concentrated waste streams are pumped directly to the storage tanks. The Pfizer representative (Jankovich) said that rainfall accumulation in the secondary containment is discharged to the facility's waste water treatment basin. The representative also claimed that any tank leaks found in secondary containment would be pumped out upon discovery.

Tank CT-101 which is the largest tank in the dike area has a capacity of 200,000 gallons. The tank receives diluted aqueous wastes from a number of production processes. Documents furnished by Pfizer indicate that the departments that send waste to Tank CT-101 include: Antibiotic, Erythorbic, Citric, Clarification, Fermentation, Ferm Pilot Plant, Recovery Pilot Plant, Organics II & III. The majority of the wastes appear to be from Antibiotic, Citric, Clarification, Fermentation, and the Ferm Pilot Plant.

A low pH waste (A600 tower bottom waste from the erythorbic process is sent to Tank CT-109 which has a capacity of 4,500 gallons for neutralization and filtering prior to be sent to Tank CT-101. Calcium carbonate (CaOH) is used to neutralize the waste in Tank CT-109. The flow diagrams provided by Pfizer indicates that waste from CT-109 is pumped to CT-115 before being pumped to CT-101. The A600 tower bottom waste contains methanol. Tank CT-106 is used to store sulfuric acid.

5.Tanks CT-102, 103, 104 and 110

Tanks CT-102, 103, 104 and 110 are located in a second concrete dike area that is located to the west of the pyrolyzer building. These four (4) tanks are used to feed waste to the pyrolyzers. Tank CT-102 is located the furthest northern in the containment dike while Tank CT-110 is located in furthest south.

Tank CT-102 which has a capacity of 150,000 gallons receives concentrated waste from the DEE. Tanks CT-103 and CT-104 have capacities of 60,000 gallons each while Tank CT-110 has a capacity of 1,500 gallons. Waste can be pumped directly to Tanks CT-103, CT-104 and CT-110 via pipelines. Also, waste from containers or tanker trucks can be pumped in Tanks CT-104 and 104. Waste in containers can also be pumped into CT-110. Jankovich said that Tanks CT-103 and CT-104 have the same size piping and that Tank CT-103 is generally used to store the higher BTU waste. The waste delivered by tanker

trucks can be pumped directly into these tanks and solvent wastes are usually pumped to Tank CT-103.

At the time of the inspection, Jankovich (Pfizer) said that Tanks CT-102 and CT-104 were feeding waste to the pyrolyzers and that Tanks 103 & 110 were empty. The records maintained by Pfizer indicated that the waste in CT-104 had a specific gravity of 1.1. The waste in Tank CT-102 contains preconcentrated waste from the DEE with a specific gravity of 1.25. Jankovich said that Tank CT-110 is normally not used. However, it may be used for special feed streams.

6.Pyrolyzer Operation

A tour of the pyrolysis operation was conducted. This tour included the control room, the pyrolyzers, the rich fume reactor (secondary chamber), the rich fume incinerator (stand-by emergency by-pass unit), the waste heat boiler, the air pollution control equipment, the continuous emission control (CEM) equipment, and the char handling system.

Each pyrolyzer is equipped with a separate feed line that is controlled by a flowmeter which recirculates the waste. No. 2 fuel oil is used as the auxiliary fuel to provide the additional heat energy to combust the waste material. Each pyrolyzer has a series of oil burners which around shell. The liquid waste is injected by means of spray nozzles which are located on the top of the pyrolyzer hearth (primary chamber). The waste is treated for one (1) complete revolution. During this rotation, the waste is subjected to a high temperature where the waste is separated into two primary components: organic vapors and residues (ash/char). The residue after it completes its revolution in the hearth is discharged into a char (residue) handling system where the char or residue is cooled with water and transferred by means of conveyor system to collection (roll-off) containers. The char handling system contains a twin paddle mixer, a water jacket system to remove heat, a rotary air lock valve transfer system, and a conveyor system (1 horizontal and 1 vertical). Jankovich said that city water is used for the cooling of the char.

The organic gases/vapors that are generated in the primary chamber are treated in the rich fume reactor (RFR). The flue gas then goes through a waste heat boiler where heat is recovered. The waste heat boiler generates steam for heating the

building and/or use in the DEE. The flue gases are then treated in the system's air pollution control equipment (quencher, high impact scrubber, countercurrent scrubber, and entrainment separator) prior to being discharged out of the stack. River water is used in the scrubber with the effluent going to the facility's waste water treatment system.

The pyrolyzer operating readouts were observed in the pyrolyzer control room. These readouts include: operating temperature for the hearth and RFR, feed rates

Observed readouts with set points or upper limits for waste feed cut-offs:

Control Room Monitor Readouts for 12/8/93:

sp: set points for alarms or cut-offs
pv: present values - instantaneous values

Temperatures:
Zone 1 Zone 2

Pyrolyzer 1 - pv: 1192.75 pv: 1394.75
sp: 1195.00 sp: 1394.75

Pyrolyzer 2 -pv: 1295 pv: 1214
sp: 1390.00 sp: 1397

Rich Fume
Reactor - pv: 1777.03
sp: 1899.94 (1900°F would result in a cut-back on feed)

Feed rates to:

Pyrolyzer 1 - pv: 2.6 gpm - for Tank CT-102
sp: 3.0 gpm

Pyrolyzer 2 - pv: 1.3 gpm - for Tank CT-104
sp: 1.856 gpm

Mass flow Rates:

Pyrolyzer 1 - 2,345.6 lb/hr

Pyrolyzer 2 - 2,650 lb/hr

O_2 level at CEM - pv: 2.92%
sp: 3.05%

Pyro 1 Chamber Pressure -pv: -0.3750
sp: -0.3500

Pyro 2 Chamber Pressure -pv: -0.4969
sp: -0.3500

Combustion Gas Flow Rate - pv: 5,700 cfm sp: 7,900 cfm (max)
Water Flow Rate to Condenser - pv:405 gpm sp: 302 gpm (min)
CO Reading - 1 ppmv - instant and 1 ppmv - rolling average
Venturi scrubber pressure - pv: 33.6 in sp: 25 in (min)

No. 2 fuel oil at 0.3% sulphur is used as the auxiliary fuel in the pyrolyzers. It is used to maintain the minimum operating temperatures in the pyrolyzers. The unit does not burn any waste oil. The pyrolyzers were installed 1982. The continuous emission monitors (CEM) do not measure hydrocarbon (HC) (not required to do so).

During the tour of the pyrolyzer building (Building 171B), one (1) HW labeled fiber drum (approximately 40 gallons) containing screening material generated from the transfer of waste from a tanker truck to one of the storage tanks was observed in the southern end of the building. The container was marked "OII-224, solids, MIBK"" on a red & white HW label. Jankovich said when the drum is full it is taken to their container storage area.

Building 167: Solvent recovery distillation columns are located at this building. According to Pfizer personnel, solvent process wastes from Organics I is hard piped to Building 167 where it is transferred to tank C-778. This tank was not labelled or dated and did not have a secondary containment dike. From tank C-778, wastes are processed through column C-1. The recovered solvent is taken off the top of the column, and the column bottoms go to tank C-758 for recovery on column C-2. Tank C-758 is a feed tank for column C-2. Column C-2 bottoms, if greater than 15% water, go to tank C-757. If the bottoms are less than 15% water they go to tank C-770. From C-770 wastes are pumped to a tank truck to go for off-site disposal or possibly to go to the pyrolyzer.

Wastes from C-757 go through a reboiler to reduce the volume of water. EPA inspectors were told that these columns recover solvent from several processes. Inspectors were also told that any tank in the antibiotics tank farm may be a feed tank to either column. Tanks C-757,758 and 770 are the only tanks designated by Pfizer as less-than-90 day hazardous waste storage tanks. These three tanks were labelled but not dated. Tanks C-757 and C-758 had a secondary containment dike. Tank C-770 did not.

Building 126: This building is associated with the Fermentation Department. The building houses mostly laboratories. Two less-than-90 day storage areas are located outside the west end of the building on either side of the building entrance. Each area contained one drum of the same mixed solvent waste stream. The drums were labelled as containing methanol, ethylacetate and acetonitrile.

Satellite accumulation containers from labs on the first floor of the building are emptied into the south outdoor storage area. Satellite containers in the first floor IPC lab, Lab 111, and Lab 129 containing methanol, MIBK, beta thyamine, ether, cyanide, freon 113, hydranol, acetonitrile, NN Dimethyl formmide, phosphoric acid, ethanol, ethyl acetate and acetone were observed.

Satellite accumulation containers from the third floor are emptied in the north outdoor storage area. Containers here were labelled with generic mixed solvent labels stating that the waste could contain acetone, ethyl acetate, methanol, hexane, toluene, methylene chloride, chloroform and isopropanol. These containers were observed in labs 302, 304, 306, 312, 316, and 326.

Observations from Wednesday, December 8, 1993:

Building 4 - Organics I:

Fourth Floor - Two satellite accumulation areas were observed on the fourth floor. The first was located in Group 2 by the B-3 area. The second was by the control panel in Group 5. These were both located at process sampling points. There was a five gallon accumulation container in each location.

Third Floor - While here, Pfizer personnel explained that wastes from

Sertraline Steps 3 and 4 process and Sulbactum Steps 1, 2, and 3 are sent for recovery on the C-1 tower at Building 167.

One satellite storage area was observed at the Group 2 manifold pit.

Second Floor - EPA Inspectors observed a centrifuge (cc-22) for the Sertraline Step 1 process. Approximately 8 drums of waste cake are generated every 2 shifts. This is a hazardous waste.

There was a satellite accumulation area at area TW-2 next to the St-2 column.

The sparkler room generates 1-2 20 gallon liquid packs of carbon filter cake. According to Rob Robertson, the cake may be hazardous. It is tested for the presence of methanol, if methanol is present it is handled as a hazardous waste.

Located outside the process control lab and offices on the second floor of the building was one 20 gallon fiber drum of hazardous solvent waste. This drum was handled as a satellite accumulation drum. According to Pfizer personnel, wastes are generated in the lab and brought out to this drum. There were no warning signs or no smoking signs in this area, and the drum was not dated. The drum contained methanol and ethyl acetate wastes.

First Floor - The bottoms of four distillation columns and the associated feed tanks are located on the first floor. None of these tanks or columns had hazardous waste labelling accumulation dates, or secondary containment. The column numbers are ST-1 through ST-4. ST-1 and ST-2 are batch fed towers, and ST-3 and ST-4 are continuously fed from the process.

ST-1 had a 1,100 gallon still pot labelled STP-1. This tower can recover from any product stream. At the time of the inspection, Sertraline Step 1 wastes were being processed. Hexane was being recovered at the top of the column. Toluene (5% at input to column) is increasing in percentage during recovery of the hexane. The bottoms with the more concentrated toluene are pumped to less-than-90 day hazardous waste storage tanks S-104, S-105, or S-106.

ST-2 is very similar to ST-1. It also could process streams from many

product lines. At the time of inspection, THF (tetrahydrafuran) was being recovered from the Sertraline Step 2 process. Bottoms from this column are piped to less-than-90 day hazardous waste storage tanks S-104, S-105, or S-106.

ST-3 is continuously fed from the less-than-90 day hazardous waste tanks. At the time of inspection, wastes from Tank S-32 were being treated. Wastes from any hazardous waste storage tank, according to Pfizer personnel, can be treated in this column. This column removes water from the waste streams. The recovered water (bottoms) goes to the equalization basin and the solvents removed from the top of the column are transferred to HW tank S-4.

ST-4 is similar to column ST-3.

Hazardous waste storage tanks - Inside and outside Building 4 were series of vertical storage tanks. According to Pfizer, each of these tanks could be used for hazardous wastes, products, or non-hazardous wastes. There is no difference in function or piping from one tank to another. All the following tanks had secondary containment except for tanks S-15 and S-16. The tanks observed and inspected include: indoor tanks S-9, 10, 11, 12, 13, 15, 16 and 32; and outdoor tanks S-2, 3, 4, 5, 6, 7, 8, 27, 28, T-320, T-690, and T-1012. With the exception of tank T-1012, tanks designated by Pfizer as less-than-90 day hazardous waste storage tanks (S-10, 11, 32, 4, T-690, and T-1012) were labelled correctly. No tank had any accumulation date postings. Accumulation time is calculated in a log book (log of plant activity). The official records of this information are kept at the Environmental Department. No other tank had any markings other than the designation number.

Tank T-1012 is a 8000 gallon vertical tank, labelled T-1012, located on the east side of the building. According to Pfizer personnel, this tank contained 8000 gallons of Primary Amyl Acetate (PAA). There were no warning signs on this tank. The tank inspection log for this date stated that warning signs were acceptable.

Adjacent to and connected to Building 4 is a tank vault (above ground) with tanks S-101 - 119 located there. According to Rich Davis of Pfizer, each of these tanks could be used for

anything. However, they are used mainly for products. Of these nineteen tanks, three (S-104, 105, and 106) are designated as less-than-90 day hazardous waste storage tanks. At the time of the inspection these tanks contained methanol and ethyl acetate. Wastes from this tank vault area are piped to an adjacent tank truck loading area. Most of the time, hazardous wastes are taken for off-site disposal from this location. Sometimes they are brought to the pyrolyzers.

Building 48 - Caffeine:

The rainey nickel catalyst filter area contained a total of five drums of rainey nickel wastes. There were no warning signs in the area. There were no dates on any of the five containers. Each of the five drums were stenciled with "flammable solid" and had a spontaneously combustible label attached. Four of the drums contained and were labeled spent nickel catalyst. The fifth drum contained press cloths and rainey nickel from the filter press. The lid to this drum was open and laying partially over the top of the drum. Rainey nickel is a reactive compound and will spontaneously combust in air when dry (EPA waste code D003).

The rainey nickel catalyst filter area contained a filter press designed to capture the spent catalyst. There is a pan below the filter press to catch liquids dripping from the filter. That pan has an open drain that leads directly to the effluent line going to the equalization basin. According to facility personnel, wet catalyst is scraped off the filter cloths onto this pan prior to placement into drums.

In the cyanide destruct area there was a five gallon black plastic bucket containing waste sodium cyanide. The bucket is located where waste from the cyanide destruct tank (tank CR2B) is sampled. Liquid is drained out of the sample line prior to a sample being taken. This liquid is collected in the pail and emptied into the tank when full. There were several inches of solution present in the pail. There was no cover and the pail was labeled as sodium cyanide. The pail was hanging on a spigot extending from tank CR2B and was out over the edge of the containment area.

Outside the Building 48 lab there was a 55 gallon drum containing

chloroform, methylene chloride, and methanol solvent wastes. There were no warning signs or no smoking signs in this area. Solvent wastes generated inside the lab are brought out to this drum. There was no secondary containment for the drum and it was not dated. A lab technician stated that the drum had been there "for a long time", and that the drum contained methylene chloride as marked and methylene chloride had not been used in the lab for approximately one year.

Research and Development

Pfizer's research and development program consists of three aspects. The first aspect is discovery. This consists of a biology component which first, identifies biological systems that a drug could effect and second, develop a model of the system. Chemistry is the second component after discovery. Research chemistry invents 20,000 new chemicals a year at Pfizer. The second aspect is development. Making formulations and sealing up processes fall in this category. The third aspect of Pfizer's R&D program is clinical. This piece of the program tracks the FDA process and conducts human trials, etc. EPA's guides during the inspection of R&D were Dan Brannegan, Bill Wolter, and Rich Davis.

Building 274 and 275: This is the drug safety evaluation building. Acute toxicology and long-term safety studies involving animal research are conducted here.

South Loading Dock CSA - This less-than-90 day hazardous waste container storage area contained two drums of mixed solvent wastes. Signs were posted. There was a blind sump, a fire sprinkler system, emergency eyewash station and spill control equipment. A fire extinguisher was on the loading dock outside the door, along with a telephone.

Only one satellite accumulation area was inspected at this building. In room 232, a pathology lab, there were two accumulation containers. One was for mixed chlorinated solvents and one for mixed non-chlorinated solvents.

Building 118: According to Dan Brannegan, all wastewater generated at Research goes to the Groton POTW. Storm water goes to NPDES outfall #007. This building housed chemical and biological laboratories. Hood vents from the various labs discharged directly to the atmosphere without filters or scrubbers.

According to Dan Brannegan, Pfizer considers these hood vents personal protective equipment.

Satellite accumulation activities at twelve separate labs were inspected. These labs included, W200, W202, W207, B214, 274, 277, B404, B405, B406, B409, B411 and B414.

These satellite accumulation areas contained mixed solvent wastes and various lab chemical wastes. All of these areas were in order with the following exceptions:

a) 1 - 2 1/2 gallon container located in lab B414. This was a satellite accumulation container in the lab. According to Pfizer personnel, it contained mixed solvents. All satellite accumulation containers in the labs required a hazardous waste solvent tag (see copy in Attachment 2). The container was not labeled or marked with the contents. Three other containers of similar wastes in this lab had the appropriate label.

b) 1 - 2 1/2 gallon container located in lab B404. This was a satellite accumulation container in the lab. According to Pfizer personnel, it contained mixed solvents. All satellite accumulation containers in the labs required a hazardous waste solvent tag (see copy in Attachment 2). The container was not labeled or marked with the contents. One other container of similar wastes in this lab had the appropriate label.

c) 1 - 5 gallon container located in lab 277. This was a satellite accumulation container in the lab. According to Pfizer personnel, it contained mixed solvents. All satellite accumulation containers in the labs required a hazardous waste solvent tag (see copy in Attachment 2). The container was not labeled or marked with the contents. One other container of similar wastes in this lab had the appropriate label.

Chemistry labs, located in the B and C wings of the third and fourth floor of the building had hazardous waste solvent picked up once a day. EPA inspectors observed a sign in lab B404 that read, "all solvent must be placed in hallway by 4:45 pm." R&D used one general mixed solvent label for all mixed solvent wastes generated by the labs.

During the tour of Building 118, I asked Rich Davis about the disposition of used fluorescent light bulbs. Richard Davis said that Pfizer discarded fluorescent light bulbs at the local landfill glass recycling area. Fluorescent light bulbs are hazardous waste due to levels of mercury which exceed Toxic Characteristic Leaching Procedure (TCLP) limits. Among the waste determination documentation which Pfizer submitted in its Response, there was a fluorescent light bulb TCLP analysis. In this analysis, dated February, 1994, the sample exceeded the TCLP limit for mercury. Pfizer now disposes of these wastes as hazardous.

Near the loading docks for Building 118 there was a less-than-90 day storage area. This area consisted of a flammable material storage cabinet which served as a less-than-90 day storage area for lab wastes that were not solvents. The cabinet was located in a very busy hallway that served as an access way that employees used to get to a supply room and the company store. The cabinet had a hazardous waste label on the outside.

The main less-than-90 day storage area for Building 118 was located at the east side of the parking lot, east of Building 118. The area consisted of two portable, flammable storage lockers. Warning signs were posted. However, there were no locks on the lockers. The larger of the lockers contained plastic boxes of lab packed chemical wastes. Similar materials were packed together. The smaller of the two lockers contained waste cylinders and small containers of various wastes. Included in this locker were mixed wastes (according to Pfizer), unknown cylinders, and ethylene oxide cylinder (undated), a one quart container of 1,4 Dioxane (peroxidized), and one pound of sodium amide (dry). The last two containers were in a box labelled "Danger - has to be remote openings". A Contractor (AETC) does the classifying of wastes in this area.

A third less-than-90 day storage area for Building 118 is located between Building 118N and the 118 cooling tower. This was also a portable flammable storage locker. Waste solvent from Building 118 labs is stored here. This waste stream was numbered RE-1389 with EPA codes D001, D022, F002, F003, F005. The drum sequence numbers were 8472, 8473, 8474, and 8486.

Building 175: Outside of Building 175 is a designated less-than-90 day

hazardous waste storage area. Stored in this area were eight pallets (4 drums each) of radioactive wastes. These were awaiting removal. Also stored here were ten pallets (9 containers each) of fiber drums containing pharmaceutical research samples that are non-hazardous (stream #RE-1392). Nine pallets (4 drums each) of ethylene glycol and water (heat transfer fluid from Bldg 156) were stored in the same area. In addition, there was one pallet with 2 drums of doramectin wastes. The drums had a hazardous waste label. However, Bill Wolter and Rich Davis said they are not hazardous.

Building 196: Inside this building is a hazardous waste storage area for Building 156 operations. Raw materials are also stored in this building. A less-than-90 day hazardous waste storage area for Building 156 was located in the southwest corner of this building. A sump (shallow trench) extended around the storage area providing secondary containment. The west end of this structure however, rose up to meet the end of another trench that ran perpendicular to it. According to Pfizer personnel, this second trench led to a drywell at the northwest corner of the building. Under certain circumstances it would be possible for wastes spilled in the storage area to overtop the first trench and run into the second trench leading to the drywell.

Building 196 Annex: Located outside the building is another less-than-90 day storage area. Ignitible and reactive wastes were stored here at the time of the inspection.

Building 156: This building is a R&D pilot plant. Outside the north side of the building is a less-than-90 day hazardous waste storage area. Three drums of mixed waste solvents were located there at the time of the inspection. The cabinet with the drums was not locked.

Satellite accumulation areas in rooms 213, 214 and 215 were observed. Rooms 215 and 214 each contained two satellite containers of mixed solvents. There was a container of raney nickel waste in Room 215. Room 214 contained five containers of solvent wastes.

Observations from Thursday, December 9, 1993:

Building 4 - Organics I: Sixteen 20 gallon fiber drums were observed

inside a garage door on the first floor at the north end of the building. These drums of waste profile # EV-505 (F005, D001 - toluene) were stored on two pallets in an area not designated for hazardous waste storage. There were no warning or no smoking signs in the area.

Buildings 108 and 141: These are the NMG production buildings. Some NMG production processes occur in Building 108 and the rest occur at Building 141. NMG is used in surfacants. According to Phil Henkin, the NMG team leader, NMG production began on a large scale eleven months prior to our inspection. The two main ingredients in NMG production (monomethylamine-MMA and corn syrup) are mixed in reactors in Building 141 and are pumped down to reactors in Building 108. Raney nickel catalyst is added in the reactors in Building 108. Product from Building 108 reactors is filtered through a primary filter and then a polishing filter to remove raney nickel. There are two of each filter. Blow down from the primary filters is sent to conical tanks. Water from these tanks is recycled to the filtration system. Raney nickel is gravity fed to drums for shipment to a recycle facility. At the time of disposal, both the primary and polishing filters contain raney nickel and are also sent to the same recycle facility. Building 108 has a scrubber system to remove MMA from emissions. This scrubber water is sent back to Building 141. Rinse water from piping and reactors as well as samples from reactors are sent to the pyrolyzers. If they contain raney nickel, they are filtered first.

There was a storage area in Building 108 with one 55 gallon drum labeled "MMA and spontaneously combustible samples from claves." It also had a NFPA label with ratings of a Health-3, Flammable-4, and Reactive-4. Samples from various process reactors containing raney nickel and monomethylamine (MMA) can not be reused in the process and are accumulated in this drum. There were no hazardous waste labels or dates on the drum. There were no warning signs or secondary containment for the area. The drum was located near tank TH-12.

A second storage area contained four 55 gallon drums labeled as spent catalyst. These containers were located inside the west door to the building. There were no warning signs for the area, and there were no hazardous waste labels or dates on the drums.

In Building 141, product sent up from Building 108 is sent to an evaporator (E-141A). When NMG concentrations reach approximately 52%, product is removed. Vapors from the evaporator, containing MMA and water, as well as scrubber waters from both buildings are sent to column D-1 for recovery. MMA volatilized and goes out the top of the column. Two condensers there recover MMA for reuse. The air flow from the second condenser is brought back to the scrubber system. Bottoms (water) from the D-1 column go back to the process as make up water.

There is a neutralization tank in Building 141 to neutralize wastes from the primary reactors. These wastes are charged with acid which reacts with the remaining MMA. The reacted mix from this tank is sent to the pyrolyzer.

Building 52: This building houses a pilot plant similar to Building 156 in Research.

Two satellite accumulation containers were observed in the lab. One was a five gallon solvent container. The second, was a small acetone accumulation container located in the lab. The can containing waste acetone, which was used to wash glassware, was balanced on the edge of the sink. It could easily have fallen into the sink. The drain from this lab went to the equalization basin.

Outside Building 52 there was one 55 gallon drum of ignitible solvent wastes, located in a less-than-90 day storage area outside the north end of the building. The drum contained acetone, hexane, methanol, pyridine, and ethyl acetate. It was labeled as a D001 waste. The drum was located approximately 30 feet from the Thames River.

A less-than-90 day storage area inside the south side of the building contained two drums of doramectin/solvent wastes, ethyl acetate wastes, and hexane wastes.

Building 4 - Organics I: I had a conversation with Laurie Chipperfield on the presence of vent controls on tanks, columns and reactors in Organics I. According to Ms. Chipperfield tanks S-104, S-105, and S-106 had conservation vents and flame arresters. The remaining hazardous waste tanks are vented to the atmosphere with flame arresters. Distillation columns vent to a condenser and vent to the atmosphere with flame

arresters. All reactors and tanks in Building 4 vent to the atmosphere with flame arresters. All hazardous waste tanks have high level alarms, only tanks S-104, 105 and 106 have automatic waste feel cut-offs.

Building 123 - Organics II: I had a conversation with Tony Marsullo and Don Devoe of Organics II concerning the venting and alarming of tanks, columns and reactors.

Tanks S-22 to S-27 have conservation vents with flame arresters. The rest of the hazardous waste tanks do not have conservation vents. The rest of the tanks and reactor vessels are vented to the atmosphere with flame arresters. Some do have scrubbers. For example, several Veltol reactors vent through caustic scrubbers. The four distillation columns are vented through a high volume salt water scrubber.

Tanks S-22 to S-27 have high level alarms and automatic waste feed cut-offs. Tanks T-5168 and T-2 have high level alarms.

Building 123 - Erythorbics: I had a conversation with Mike Teague concerning the venting of tanks, reactors and columns. All waste solvents and product tanks have analog measure and digital level probes. All tanks, reactors and columns are vented. Columns are vented through a distillate receiver, condensers and scrubbers. Reactors are vented through condensers and scrubbers. Some tanks are vented the same as the reactors, some vent to a scrubber, and still others have conservation vents.

Scrubber waters go to tank T-80. T-80 feeds column C-317. The C-317 column bottoms go to the equalization basin. The tops of the column go to column V-55 for further recovery.

Observations from Friday December 10, 1993:

Building 4 - Organics I:

Manifold room - Air monitoring equipment brought by EPA personnel detected leaks from valves V07S18 and V12S17. An OVA detected >10,000 ppm. The OVA also detected approximately 900 ppm in the sump area.

Roof - The #2 distillation tower vent (2TWR C/V and 2TWR S/T) had an OVA reading of >10,000 ppm and an OVM reading of 3,500 ppm.

The BSC-4 scrubber vent, which vents solvent recovery towers, had an OVA reading of >3,500 ppm. This vapor has been through a condenser and scrubbers.

The vent for tank S-4 had and OVA reading of approximately 3,000 ppm.

A vent from an unknown source had an OVA reading of >10,000 ppm and an OVM reading of >2,000 ppm. Gene Boiselle stuck his hand in the vent to accumulate liquid. Then he sniffed his hand in an unsuccessful attempt to identify the chemical present in the discharge.

Building 150: This is the antibiotics production building. Natamycin was being produced at the time of the inspection.

Roof - There is a carbon absorption unit (CAU) located here. Two beds of carbon remove solvents from air. The carbon is also desorbed here with steam. These vapors go to a condenser. The units were not in operation at the time of inspection.

A hazardous waste storage area containing one 55 gallon drum of hazardous waste lubricating oils was located at the north end of the sixth floor of the building. This drum was handled as a satellite accumulation drum. According to Pfizer personnel, waste oils are generated at various locations on the sixth floor and brought to this drum. There are no activities ongoing in the vicinity of this drum. There were no warning signs in this area, and the drum was not dated.

4th Floor - In antibiotic production, filter presses remove solids (products) from the liquid broth. The remaining liquid process wastes (mother liquid) are sent to the 460 series storage tanks. These tanks are numbered T-460 to T-467. According to Pfizer personnel tanks T-462 and T-463 were active, containing waste isopropanol from Natamycin production. The wastes from these tanks presently go to tank C-787 in the Antibiotics tank farm. They also stated that Semduramicin had not been in production since late December 1992 to early January 1993. Pfizer personnel stated that tank T-467 contained ethyl acetate wastes from Semduramicin production and those wastes go to tank C-786 in the Antibiotics tank farm. None of these tanks were labeled as

hazardous waste, none were dated, and there were no warning or no smoking signs in the area.

Antibiotics Tank Farm:

Tank C-786 is a 40,000 gallon tank located near the east end of the tank farm. The tank did not have secondary containment. It was not labeled. There were no dates or warning signs. According to Pfizer personnel, this tank receives solvent wastes from tank T-467 in Building 150.

Tank C-787 is a 40,000 gallon tank located toward the east end of the tank farm. The tank did not have secondary containment. It was not labeled. There were no dates or warning signs. According to Pfizer personnel, this tank receives solvent wastes from the T-460 tank series in Building 150.

These tanks had high level alarms but no automatic waste feed cut-off.

Packed Column (P/C) - Located in the tank farm, this column recovered solvent from antibiotic waste streams. Bottoms from the column go to the equalization basin. Recovered solvent goes to Tank C-759.

When cleaning a tank in the tank farm, two rinses are performed. The first rinse is piped back to waste water storage tanks for that process to await the next campaign of that material. The second rinse goes to the equalization basin.

Outbrief:

An outbrief for Pfizer personnel was conducted by the EPA inspection team. Each program lead inspector provided Pfizer with a summary of major findings to that point. Pfizer personnel provided EPA feedback on their impressions of the inspection.

VI. Record Review

The following is a summary of a partial record review. A complete review of all documents submitted by Pfizer will be attached to this document at a later date.

On May 18, 1994, EPA issued a RCRA §3007 Information Request Letter to Pfizer. In that letter, EPA requested the records necessary

to complete a records review of the facility. The following section summarizes the portions of the submitted data that were reviewed:

Closure Plan: The Closure Plan for the Hazardous Waste Storage Area was not reviewed since the plan was approved in FY93 after CT DEP review and public notice.

Exports: Pfizer reported that during calendar years 1992 and 1993, they did not export any wastes and no Notifications of Intent to Export were filed.

Contingency Plan: A limited review of the Contingency plan was conducted. There were no listings or descriptions of spill control equipment at hazardous waste storage areas as required by 40 CFR 265.52. Personnel protective equipment, spill control equipment, and communication equipment for the greater than 90 day HWSA were neither listed in the plan nor observed during the inspection of the area.

Table G1-1, Summary of Waste Profile Sheets, listed how and where wastes are stored. This table indicates that many chlorinated solvents are routed to and stored in feed tank CT-103.

Pfizer reported that during calendar years 1992 and 1993, there were no incidents requiring the implementation of the facility Contingency Plan.

Annual and Biennial Reporting: The 1993 Hazardous Waste Report was reviewed.

Inspection Logs: 1993 weekly inspection logs for the HWSA, daily logs for the <90 day hazardous waste tanks, the precipitation run-off control logs for the HWSA, weekly inspection logs for the Lead Acid Battery storage area, and weekly <90 day hazardous waste storage area logs underwent a limited review. The following points summarize deficiencies identified.

Inspection logs for the daily inspections of the Organic 2 Department < 90-day hazardous tanks are missing from 11/30 to 12/6/93.

Pfizer pumps water accumulated in containment structures to NPDES outfall #008 after testing (see waste determination discussion below). A log (Run-off Control Log) reporting the

testing results is required by Pfizer's inspection plan. Additionally, the plan requires inspection of hazardous waste storage areas within 24 hours of precipitation events to evaluate the need to evacuate ponded water. There were no Run-off Control Logs for the HWSA for five dates (1/8/93, 3/26/93/, 4/5/93, 4/23/93, and 12/6/93). On these dates inspection logs document the discharge of water. There is no notation of discharges, or separate documentation of inspection, in the log record after precipitation events on thirty-nine separate dates in 1993. On these dates, Run-off Control Logs exist that document the discharge of containment waters.

On April 18, a cracked berm was noted in the Building 196 Annex, with instruction to "notify Maintenance". There was no report of follow-up but thereafter the "condition of the dike" was okay.

On 1/19/92, page 2 (for Building 172) of the Pyrolyzer Tank System Loading/Unloading Daily Inspection was missing. Two times, on 1/3 & 1/15/92, there was no report, "A" or "U", on the "Containment Areas For Tanks" in this inspection. Once, 7/12/92, there was no report, "A" or "U", on Tank CT-101.

There was no log for the 2nd Qtr/92 for Pyrolyzer Equipment Inspection.

There were no logs for weekly or monthly inspections of the Pyrolyzer Waste Feed Cut Off System or for the Pyrolyzer Subpart BB Weekly Inspection.

There were no inspection logs for Pfizer-designated satellite accumulation areas which EPA observed being operated as less-than-90 day storage areas.

NOTE: Only January and July 1992 and January and July 1993 pyrolyzer inspection records were reviewed.

Training Plans and Records: The training records submitted and reviewed include copies of training programs, position descriptions including names of personnel filling those positions, and specific training documentation for twenty-two individuals specified by EPA in the information request.

Rich Davis stated that the training plan currently being used at the facility was the plan developed for the draft Part B permit.

Pfizer states in the training plan that they comply with OSHA requirements outlined in 29 CFR 1910.120 and that these requirements fulfill the training requirements of 40 CFR 264. Pfizer states that they comply with 29 CFR 1910.120 (p). 29 CFR 1910.120 (p)(7)(i) requires training for "employees involved with hazardous waste operations to enable employees to perform their assigned duties and functions in a safe and healthful manner so as not to endanger themselves or other employees." Employees that fall under this category require 24 hour Hazwoper training and 8 hours annual refresher training. RCRA Coordinators across the facility are responsible (according to their job descriptions) for managing all hazardous waste operations in their building, making waste determinations, training staff personnel, designating storage locations, etc. Certain staff under the RCRA Coordinators have the same responsibilities as the coordinator. Additional staff people have responsibilities that include filling hazardous waste drums, transporting hazardous wastes around the facility, and sampling hazardous waste. None of these employees receive 24 hour or 8 hour training. According to Pfizer records, this would be approximately 491 employees.

Selected records chosen out of the information listed above was reviewed.

Personnel in hazardous waste generation areas receive one hour of initial RCRA training and one hour of refresher training annually. Attendance sheets for 1991 and 1992 were submitted. The training at Research and Development seems to be more geared to general chemistry safety and not focused on RCRA per se. Staff in treatment and storage areas receive 24 hours of initial RCRA training and eight hours of refresher training annually. No documentation of this training was received by EPA.

The review of specific training records revealed the following:

There was no training documentation for Jack Cannon.

Mike Teague, Charlene Hughes, Damien Greene, and David KcCormick did not have documentation for 1993 annual RCRA refresher training.

Daniel Brannegan, William Wolter, and Damien Greene did not have

documentation for 1992 annual RCRA refresher training.

There was no documentation for training after 1991 for Donald Frye.

Subpart AA: Pfizer's submittal consists of one (1) bound volume of material. Pfizer has identified one (1) unit, the BK-2 Double Effect Evaporator (BK-2) located in Bldg. 171, that falls under this subpart. BK-2 is associated with the pyrolyzer system and thus satisfies the "[u]nits that are subject to the permitting requirements of part 270" standard for Subpart AA applicability at §265.1030(b)(1). The control devices for the system are a **barometric condenser/scrubber** and a **liquid ring vacuum pump.**

Pfizer has determined this unit to be in compliance with the applicable emission rates of 3 lbs/hr and 3.1 tons/yr based on information provided in this §3007 response and "using engineering judgement along with applicable USEPA calculation standards..." Note that with respect to units meeting the emission standards using add-on control devices, the regulations at §265.1032(c) refer to determining compliance either through engineering calculations or performance tests.

Pfizer states that continued compliance is determined through annual reviews of operating records.

Compliance Evaluation:

Pfizer states that it elects to determine emission rates using engineering calculations in lieu of performance tests. Samples of supporting data for calculations from December 1991 are supplied. Also, data from a March 1992 field test is supplied.

Subpart BB: Pfizer, in response to the information request, submitted six volumes on the BB program. Contained in Volume Six were the 1993 weekly visual inspection logs for pumps, monthly leak inspection logs for pumps and quarterly leak inspection logs for valves for Antibiotics Recovery, Organics North, Organics 2, or South, and the Pyrolysis System.

The following observations were made during a review of these records:

Organics North - Weekly visual inspections for pumps:
*no inspections indicated for pump 690-1 (a.k.a. 690-10) for weeks of

1/6/93 and 1/27/93

Organics North - Monthly leak inspections for pumps:
*reports not submitted for pump 690-1 (a.k.a. 690-10) at Tank 690 for months 2/93 and 3/93

Organics North - Quarterly leak inspections for valves:
*no numeric concentration entries for valves S-104-64, S-104- 65, and S104-65. Entries for these valves were marked "unreadable."

Organic 2 - Weekly visual inspections for pumps:
*pump FC1-1 first inspected the week of 9/1/93 (i.e., this pump was not inspected during the first 34 weeks of 1993)

Organic 2 - Monthly leak inspections for pumps:
*the logs submitted indicate that pump FC1-1 was only inspected for leaks the months of 9/93 and 12/93

Pyrolyzer Related Document Review: Considerable documentation was submitted by Pfizer describing various aspects of the pyrolyzer systems. A limited portion of those records were reviewed.

Quantities of Waste to Tank CT-101 were reviewed to determine the sources of waste to Tank CT-101. The documents furnished by Pfizer indicates that the departments that send waste to Tanks CT-101 include: Antibiotic, Erythorbic, Citric, Clarification, Fermentation, Fermentation Pilot Plant, Recovery Pilot Plant, Organics II & III. The majority of the wastes appears to be from Antibiotic, Citric, Clarification, Fermentation, and the Fermentation Pilot Plant.

Pyrolyzer Waste Feed Cut-Off Logs - Logs from 10/91 to 12/93 were reviewed. Causes and corrective actions were reviewed to determine whether there were any patterns to the waste feed cut-off activation. The log notes a cause (No. 11 - Switch to RFI) for a waste feed cut-off was used at least seven (7) times during 1993. See below for additional comment for not logging an incident (high CO - greater than 100 ppmv CO) which should have resulted in an automatic waste feed cut-off.

Waste Profile Records for Pfizer Waste Nos. 03-121, 02-SOL, and 01-SOL: These waste streams were given limited reviews.

Waste No. 03-121 (Chem Off Spec Prod Soln) from Organics North - No Waste Profile Sheet No. - The facility makes a claim that the waste is non-hazardous - Direct feed to CT-102.

Waste No. 02-SOL (Organic 2 Solvent) from Organic 2 - Waste Profile Sheet No. 306 - Waste Code Nos. D001 and F003 - Constituents listed: water, methanol, ethyl acetate, and ethanol - Feed to Tank CT-103.

Waste No. 01-SOL (Organic I Solvent) from Organic North - Waste Profile Sheet No. 305 - Waste Code Nos. D001 and F003 - Constituents listed: hexane, methanol, ethyl acetate, ethanol, p-Amyl acetate, tetrahydrafuran, water, and isopropanol - Feed to Tank CT-103.

Training records for pyrolyzer personnel: Records were provided only for HAZWOPER/OSHA training and annual refresher training. No other specific pyrolyzer operation training program and records were provided. In addition, no records were provided to demonstrate compliance with 40 CFR § 256.16(a)(3)(ii) - "Key parameters for automatic waste feed cut-off (AWFC) systems".

Waste analysis of pyrolyzer char: Annual analysis is done for CTDEP for disposal of char in solid waste landfill. In the documents, Pfizer cites CTDEP authority to grant such approvals under 40 CFR §268.9. However, it should be noted that CT is not authorized for this provision.

Given the numerous sources of waste feed to the pyrolyzer, it is questionable whether a single annual sample of the char will provide adequate information on the characteristics of the char. In addition, the sampling location(s) of the char should be provided to determine if the sample is representative.

CO and O_2 Monitor - Calibration, Inspection, and Maintenance Records: Records for the first half of 1992 and the last quarter of 1993 were given a cursory review. The 1992 inspection records indicated that there were problems with the calibration of the monitors as well as the lack of audit gases to calibrate the monitors. A noted change from the 1992 and 1993 records that were reviewed was the incorporation of Remedial Work Orders for deficiencies found

during the 1993 inspections. The inspection records did not indicate whether any quarterly cylinder gas audit and an annual relative accuracy test were performed on the CO and O_2 continuous emission monitors (CEM). In addition, there were no notes to indicate whether there were attempts to resolve differences in low and high CO readings, especially when one monitor was providing a positive reading while the other monitor, a negative reading.

A review of CEM records for October 29 and 30, 1993, indicated that there were high CO readings (CO was greater than 100 ppmv) from 1400 hours (10/29/94) to 0200 hours (10/30/94) which should have initiated an automatic waste feed cut-off (AWFC). A review of the Pfizer waste feed cut-off logs for October 1993, indicated that there were no AWFC activations. The inspection logs for the two days (10/29-30/93) gave no indication that a high CO operating condition existed.

A review of the CEM records for the first quarter of 1993 also showed a number of exceedences of the 100 ppmv CO limit on an hourly rolling average as well as the initial or raw data readings (1/2, 1/9, 1/10, 1/15, 1/16, 1/22, 2/2), which should have resulted in an automatic waste feed cut-off. In addition, there was a data gap in the Pfizer waste feed cut-off log that spanned the period between 10/9/92 to 1/15/93. The high CO exceedences of 1/15, 1/16, 1/22, and 2/2, which should have initiated a waste feed cut-off, should have been recorded but were not. The causes of these exceedences were not clearly identified in the documentation that were provided.

The review of the CO readings for the time periods indicated above, show that there was no consistency in the readings. At points, there were inconsistencies in the CO readings (i.e., both positive and negative readings) for the same day as well as the same time frames. It appears the CO continuous monitor may not be operating properly.

Inspection Plan: The inspection plan that was submitted in response to the §3007 request does not contain any discussion on the inspection of the char/residue collection and storage process nor on the double effect evaporators. There was no discussion nor any checklists of these activities provided.

Hazardous Waste Manifests and Land Disposal Restriction Notifications

(LDR): EPA requested and received copies of all manifests and LDR forms for the time period from January 1, 1993 to April 1, 1994. EPA's review of this documentation consisted of the review of approximately one hundred and forty of these manifests.

The following manifests did not have complete LDR Notifications. Treatment standards for methanol wastes were not specified.

NJA1555808 1/11/93
NJA15558091/11/93
NJA15558101/12/93
NJA15558141/22/93
NJA1555815 1/22/93
NJA15558161/29/93
NJA15558232/4/93
NJA15558242/5/93
NJA15558373/12/93
NJA17672631/18/94
NJA17672601/17/94
NJA17672641/19/94
NJA17672651/20/94
NJA17672922/17/94
NJA17672972/22/94
NJA17990942/21/94
NJA15398653/14/94
NJA18872533/29/94
NJA18872553/31/94

The following manifests did not have complete LDR Notifications. Treatment standards for various wastes or sub-categories were not specified.

NJA15558091/11/93 - F002
NJA15558182/3/93 - Toluene
LAA3164164/51/8/93 - F005
CTF02372065/25/93 - D001
CTF02372089/30/93 - D001
CTF023720912/16/93 - D001
NJA17990992/28/94 - D001,F003
NJA18872533/29/94 - Chloroform, D022
NJA18872553/31/94 - Chloroform, D022

The following manifest did not have an LDR Notification.

NJA1555817 2/2/93 - Methylene chloride and methanol

The following manifest did not identify F003 on the LDR Notification.

CTF02372089/30/93

LAA3164190 - 1/21/93 - This manifest had two corrosive waste streams consisting of sodium hypochlorite. This was identified as UN1791. The LDR form for this waste should have had D002 ALK checked off and not both D002 ACID and D002 ALK.

NJA1483851 - 4/29/93 - A corrosive liquid waste stream consisting of 55% hydrochloric acid, 3% ethylene dichloride, and 42% water was identified as UN2922. It should have been UN1789.

LAA3164164/5 - 1/8/93 - Five separate streams all ID'd on manifest as BR-39535.

Six separate waste streams (on nine different manifests), all containing mixtures of methanol and various solvents, all with different constituents, all list their waste stream number as L-10708.

A review of the layout of the Pfizer properties revealed that Pfizer must transport hazardous wastes along a public road in order to bring wastes from Research and Development to the interim status storage area. There were no manifests or LDR notifications present in Pfizer's records indicating proper transportation. In addition, there is only one EPA identification number for Pfizer properties in the area.

Waste Analysis Plan (WAP): The WAP reviewed was updated on December 1, 1993. A limited review of this document was conducted.

Pfizer evaluated precipitation accumulated in hazardous waste storage area containment structures. Accumulated liquid is tested for pH and total carbon (TC). If the pH is below 4 or above 10, or TC is above 500 ppm, then the liquid is managed as hazardous. If the liquid is from the HWSA, then its odor and appearance is also used to assess if it is a hazardous waste. Additionally, each area will be visually inspected to look for leaking containers.

In the discussion of the pyrolyzer feed tanks, the WAP estimates that if organics were present in wastes treated in the Double-

Effect Evaporator, then approximately 75% would be evaporated and removed in the overhead steam. The steam is condensed and sent to the Wastewater Treatment Plant.

Pfizer uses knowledge of waste, total waste analysis TCLP to determine compliance with LDR requirements.

Pfizer sends LDR wastes to the on-site wastewater treatment plant. The list of those streams was not provided. Pfizer claims this is an exemption under 261.4(a)(2).

Pfizer recycles LDR wastes on-site. The list of those streams was not provided. Pfizer claims this is an exemption under 261.4(a)(8).

Waste Determinations: A review was conducted of selected waste streams. A summary of the determinations is below:

Waste Form #PRD-7739 - Waste Ethylene Glycol from pilot plant. MSDS sheets and process knowledge used.

Waste Form #PRD 7756 - This scrubber water appears to have a strong likelihood of containing methylene chloride. Determination is based on process knowledge and a material balance.

Waste Form OIII-396 - Waste grease from autoclave seals. Waste determination is based on process knowledge.

Waste Form RE-1381 - Liquids (non-regulated) from the Research Facility are all placed under this form. Knowledge is used for a determination.

Waste Form RE-1392 - Solids (non-regulated) from the Research Facility are all placed under this form. Knowledge is used for a determination.

Fluorescent Light Bulbs - At the time of the inspection, Pfizer discarded fluorescent light bulbs at the local landfill glass recycling area. Pfizer now treats these wastes as hazardous.